REMARKS

Claims 1, 3-5 and 7-10 are pending in the application.

Claim 1 has been amended to recite that the basket is metallic and thus "gas tight." No new matter has been introduced. The amendment to claim 1 is supported by the description on page 3, line 30 of the specification. The reactor shell and the inlet channel are connected to each other in a gas tight, leak-free manner, as described on page 2, lines 21-22. The reacted gas leaves the basket inside the reactor shell, as described on page 4, lines 7-9 of the specification.

Claims 1 and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over Öttle in view of Dunster and Ravault. Claims 3-5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Öttle in view of Dunster and Mentschel. Claims 8 and 9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Öttle in view of Dunster and Hahn. Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Öttle in view of Dunster and Werges.

Applicants provide below comments to the patentability of the pending claims (first of claims 1 and 7, and then of claims 3-5) in view of the cited prior art references.

Claims 1 and 7

The catalyst in the reactor of Öttle is surrounded by a foil, which is a thin, soft, bendable sheet. In contrast, the catalyst of the claimed invention is surrounded by a basket, which is a stiff, rigid, strong metallic vessel capable of supporting several cubic meters of catalyst.

The basket of amended claim 1 is gas tight from the inlet of the basket to the outlet of the catalyst bed (page 4, lines 7, 8). This means that absolutely all process gas flows through the entire catalyst volume. Further, the reacted gas leaves the basket inside the reactor shell (page 4, lines 7, 8). In this manner, there will be the same pressure inside and outside the basket (page 4, lines 15-17), so only the reactor shell needs to be designed for the operating pressure.

Contrary to this, the foil in the reactor of Öttle extends from the inlet of the reactor to the outlet of the reactor (Fig. 1), and the foil must then be able to withstand the full operating pressure. Thus, a person skilled in the art would not have been motivated to consider the reactor of Öttle to arrive at the reactor of amended claim 1 of present invention.

Even though Dunster discloses a catalyst for catalytic, partial oxidation, which might be installed in the reactor of Öttle, the resulting combination would still not allow all the gas to flow through a basket and the entire catalyst volume, and to leave the basket inside the reactor shell, ensuring the same pressure on both sides of the basket walls.

Ravault discloses a reactor, where a porous material is made gas tight by glazing it (column 4, lines 12-17). In contrast to Ravault, in the claimed invention, the inner surface of the basket is provided with a layer of a ceramic material, to make it withstand the high temperature of the reacting gas (page 4, lines 22-24). As a ceramic material is porous and not mechanically strong, the glazing on a ceramic material does not suggest adding a ceramic layer on the foil in the reactor of Öttle to make the foil strong and gas tight.

The reactor of Öttle (with the right catalyst) might catalytically, partially oxidize hydrocarbons at low pressure (even though this would require a big reactor or a small gas flow). But this reactor would not suggest letting the reacted gas leave the catalyst and the basket inside the reactor, and letting the basket bottom inside the reactor support the catalyst, as in the reactor of the claimed invention (amended claim l).

Claims 3-5

The reaction chamber of Mentschel is surrounded by an outer wall 101. Inside wall 101, the reacting gas flows at operating pressure (Fig. 2). At the bottom of the reactor, the outer wall forms a recess (a receding part). In this manner, the small (column 2, lines 55-57) reactor of Mentschel can be installed by placing it around a post (a strong piece of metal set upright as a support), i.e., the reactor rests on a post.

On the inner side of outer wall 101, the catalyst is installed with the gas flowing through it at operating temperature and pressure. On the other side of the outer wall is the atmospheric air at atmospheric pressure - this means also that in the recess 105 is atmospheric air. And this is where the heater of Mentschel is installed (column 7, line 24-25). Thus, Mentschel does not disclose or suggest installing an electric heater inside a reactor, where the heater is surrounded by the process gas and at full operating pressure.

Comments Regarding Hahn and Werges

Hahn discloses that impurities of hydrocarbons in bromine can be oxidized by pure oxygen at 1000°C. This does not suggest - not even if it takes place in the reactor of Öttle - to catalytically, partially oxidize a hydrocarbon at 500-1300°C, preferably 900-1200°C, in the reactor of present invention, as defined in amended claim 1.

Even though Werges discloses a grid as a support in a tubular reactor (column 2, line 33), this will not lead to a grid as a basket bottom as in the reactor of present invention.

Allowance of all pending claims is solicited.

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